REMARKS

I. Introduction

Claims 1-25 have been examined and rejected. Upon entry of this amendment, Claim 14 will have been amended and Claims 2 and 15 will have been canceled. Applicants respectfully submit that pending Claims 1, 3-14, and 16-25 are now in condition for allowance and request continued examination and reconsideration of the rejections set forth in the Office Action.

II. Response to Rejections

A. Rejections under 35 U.S.C. § 102

The Examiner rejected Claims 14, 18, 20, and 21 under 35 U.S.C. § 102(b) as being anticipated by Ogasawara U.S. Patent No. 6,512,919 ("Ogasawra"). In response, Applicants have amended Claim 14 and canceled Claim 15.

B. Rejections under 35 U.S.C. § 103

1. Rejection of Claims 1-4. 7, 9, 10, and 15

Claims 1-4, 7, 9, 10, and 15 were rejected under 35 U.S.C. § 103(a) as being unpatentable over Ogasawra in view of Tsikos et al. U.S. Patent No. 6,837,432 ("Tsikos"). With respect to Claim 1, the Examiner stated that Ogasawara discloses:

> "a wireless videophone with an integral digital camera enabling a shopper to scan, recognize, and decode capture bar or icon code images of purchased items, and pattern recognition software translates the barcode image data into an alpha-numeric product identification. A commercial telephone network facilitates connection of the store server to a wireless telephone via a cellular telephone network, and transmits the video graphic image of the numeric, alphanumeric or barcode identifier to a server for recognition processing. Processing results are then transmitted back to the customer's wireless videophone for display to the customer." (p. 3-4)

The Examiner makes specific references to Col. 3, lns. 13-17, Col. 6, lns. 42-52, Col. 22, lns. 40-58, Fig. 1, and Fig. 13.

Additionally, the Examiner argues that Tsikos teaches a:

> "hand-held laser illuminated image detection and processing device for use in reading barcode symbols and other character strings (See Col. 6 Line 52-55). The device corrects viewing angle distortion occurring in images of object surfaces captured as object surfaces at a non-zero skewed angle (See Fig. 1 8D), measures the pitch and yaw angles (See Col. 49 Line 25-3 1) of each slave Package identification (PID) unit in the system, reduces the size image of the light emitting source (See Fig. 658; Fig. 66B), rotates the x axis (See Fig. lG17C- F), employs the camera pixel data buffer structure (See Fig. 20), and buffers edge detection processing module (See Fig, 19)." (p. 4)

a. Ogaswara cannot be used as the basis for rejecting Applicants' claims:

Ogasawra solely, scarcely, mentions that the decoding may also be done directly on the phone, but he does not provide any method of enablement. Applicants, provide a method of enablement for decoding barcodes utilizing the low-quality imager present in most camera phone and many other similar devices. It is therefore, respectfully submitted, that Ogaswara cannot for the basis for rejecting Applicants' invention.

b. Combination of Ogasawra and Tsikos cannot form the basis for rejecting Applicants' claims

Applicants respectfully submit that it would not be obvious to one skilled in the art to combine the teachings of Ogasawra with the teachings of Tsikos for the following reasons:

1. The teachings of Ogasawra are directed toward a "wireless videophone system." The wireless videophone is used to take a picture of the barcode and transmit it to the server for decoding. **While** , Tsikos discloses a laser-based decoding system designed to scan barcodes moving at high speed. Tsikos discloses a decoding logic that is specific to laser based scanning, that could not be ported to a camera-phone environment, due to the fact that camera-phones do not allow the illuminating of a barcode. Also, Tskos discloses different methods of capture of the barcode via the laser beam. Therefore, the decoding

logic and method of capturing the barcode utilized by Tsikos would not be compatible with Ogasawra because two completely different technologies are involved (optical decoding of Ogasawra vs. laser-based scanner decoding in Tsikos). As a result, if one skilled in the art combined Ogaswara and Tsikos he will not enable a camera-phone or similar mobile devices to decode barcodes.

2. Tsikos discloses a method for decoding an "intensity data map" of a barcode which is moving by a stationary sensor at high-speed. As the barcode passes by the stationary sensor, the barcode is illuminated by multiple lasers. Next, **multiple** linear (i.e., one-dimensional) images of the barcode are captured and processed to determine a "region of interest" (i.e., possible locations of a barcode). This composite image is then decoded on a server.

In contrast, Ogasawra discloses taking a **single** image of a barcode and passing it to a server for processing and decoding. In order for Ogasawra to employ the decoding method described in Tsikos, multiple images of the barcode would have to be transmitted to the server and the barcode would have to be illuminated by lasers. If one needs to take several pictures with camera-phones or similar mobile devices and send it to a server the process would be protracted and renders the decoding process unpractical. Applicants' invention discloses the capture of a single image and the decoding thereafter in the mobile device itself equipped with a camera, without sending the images to a remote server. Therefore, Applicants submit that if one skilled in the art combined Ogaswara and Tsikos he will not enable a camera-phone or similar mobile devices to decode barcodes in the device itself.

c. Applicants' Invention in View of Tsikos cannot form a basis of rejection of the claims in hand

The decoding method of Tsikos involves a complicated setup in which multiple lasers and CCDs are required. In most embodiments described in Tsikos, the barcode scanning device must be at a fixed position relative to the moving barcode(s). Also, Tsikos discloses the need of taking multiple images for the barcodes. For these reasons, Applicants submit that it would be impossible to implement Tsikos on a mobile device,

as the Examiner has suggested. At the time Tsikos was patented, mobile devices that could perform what Tsikos discloses did not exist and they still do not today.

Applicants' invention describes a method for decoding a barcode from a **single** image of a barcode on the mobile device itself, and not on a server (as is done in Ogasawra and Tsikos). Applicants invention describes a method and system which allows a mobile device with limited processing power (such as a camera phone) to decode a barcode from a two-dimensional image. Therefore, the different methods to correct rotation, pitch, yaw, etc. in the barcode image are different than those employed in Tsikos.

c. Applicants' Invention in View of Tsikos and Ogasawra clearly shows that the Invention is not obvious to one skill in the art

Examiner argues that it would be obvious to one skilled in the art to combine Ogasawra and Tsikos to provide a "hand-held laser illuminated image detection and processing device to barcode symbol reading/scanning system that it would identify and detect the barcode image for producing digital image." Although this statement might be true, it does not have any bearing on the case at hand, and solely reinforces Applicants argument that it will not be obvious to one skilled in the art to combine Tsikos and Ogaswara to arrive to Applicants' invention. The reason is the following: **Applicants' invention clearly teaches away from utilizing lasers and/or another form of illumination, as the purpose of the invention is to replace such single use barcode laser scanner**. Applicants, therefore, have specifically designed methods to avoid having to illuminate the barcode (such as the filter depicted in FIGs. 5A-5C) such that an ordinary camera phone or other device with a preexisting digital camera can decode barcodes.

d. Applicants' Invention Is Novel In View Of the Prior Art

Moreover, even if one skilled in the art were able to combine the teachings of Ogasawra and Tsikos, they would still not arrive at Applicant's present invention. Specifically, if one were to combine the teachings of Ogasawra and Tsikos, he/she would end up with a mobile device which must have multiple CCDs and a laser illumination system in order to function. Applicants' invention, in contrast, does not require any illumination in order to decode barcodes. It is also capable of decoding barcodes within

the processing and memory constraints posed by mobile devices, such as are discussed in the background section of Applicants' patent application.

Applicants submit that their invention describes a novel method for decoding barcodes utilizing the low-quality imager present in most camera phone and many other similar devices. By utilizing the different combination of filters and correction techniques described in Applicants' invention, one would be able to decode a barcode from an un-illuminated picture. The decoding would also be able to be done on the mobile device itself, which is something previously not possible. Therefore, Applicants believe their invention is novel in view of Ogasawra and Tsikos.

In view of these arguments, Applicants believe that Claim 1 is allowable in view of the prior art. Applicants also believe that Claim 14 should also be allowable in view of the foregoing arguments made by Applicants.

2. Rejection of Claims 3, 5, and 16

With respect to claims 3 and 5, the Examiner rejected them under 35 U.S.C. 103(a) as being unpatentable over Ogasawra, in view of Tsikos, in further view of Chiu U.S. Patent Application No. 2002/0084330 ("Chiu"). The Examiner further argues that Chiu discloses the steps of decoding a barcode by "obtaining the edge points, recognizing the symbology of the barcode, counting and comparing the edge points to a predefined threshold value, and decoding the data characters in the barcode."

a. Rejection of Applicant's Invention Further in View of Chiu does not sustain a more attentive review due to significant differences in the employed techniques and processes between Chiu's and the Applicants' claims

Applicants submit that the method of enablement disclosed by Chiu is limited and very different from the one disclosed by Applicants. For example, Chiu does not disclose the step of "comparing the edge points to a predefined threshold value." Chiu discloses first computing the precise widths between the high contrast edges (step 170, FIG. 1) and then decoding this ordered list of widths according to various symbology libraries. In contrast, Applicants do not always perform the step of computing the precise widths as this step is unnecessary for many barcodes. Applicants only utilize the number of edges to determine if a barcode is from a certain symbology. For example, if the number of edges is greater than 25, the barcode may be a UPC-A barcode. Applicants' invention would then calculate the widths and attempt to decode the barcode. However, if the number of edges had been less than 25, Applicants' invention would not attempt to decode the image according to any symbology which has more than 25 edges.

Chiu also does not disclose the step of loading a first symbology library in the process of decoding a barcode from an image. Applicants believe that this is a novel step because it allows different types of barcodes to be loaded and makes the decoding more customizable. For example, if someone utilizing the present invention was only decoding UPC-A barcodes, then this would be the only symbology library loaded. However, if UPC-E barcodes were also being decoded, this symbology library could easily replace the UPC-A symbology library. Decreasing the amount of libraries allows for faster processing, especially on devices with limited processing power and small internal storage space.

b. Combination of Ogasawra, Tsikos, and Chiu is insufficient to reject Applicants' claims

Applicants' method of decoding a barcode from a two-dimensional image is specifically geared toward decoding barcode images acquired via a camera phone or other similarly equipped mobile device. Applicants even discuss these issues in the background section of the specification: lighting, size, skew, battery power, etc. For

example, Applicants disclose steps such as processing the image again after edge detection (see adaptive correction step 413) if the barcode cannot be decoded.

Additionally, Applicants believe that one skilled in the art would not combine the teachings of Tsikos with the teachings of Chiu because they both disclose extremely different methods of decoding barcodes which are not compatible without major modifications. As previously discussed, Tsikos discloses using a laser-illuminated device and multiple images to decode a barcode. In contrast, Chiu discloses decoding a barcode from a single two-dimensional image.

In view of these arguments, Applicants believe that Claims 3 and 5 are allowable in view of the prior art. Applicants also believe that Claim 16 should also be allowable in view of the foregoing arguments made by Applicants.

3. Rejection of Claim 6 is unjustified

With respect to Claim 6, the Examiner rejected the claim as being unpatentable over Brandt et al. U.S. Patent No. 6,585,157 ("Brandt"). Specifically, the Examiner argues that Brandt discloses that "if the edge strength of the elements in the potential quiet zone were below some threshold, then other factors could be considered to determine if this was a valid quiet zone, which is required for decoding a particular symbology." Applicants do not calculate the "edge strength" or any similar item and compare it to a threshold value. Claim 6 is directed at comparing the number of edges found in a particular barcode image to a threshold, and not the apparent edge strength of a single edge. The number of edges is the number of elements which are detected in the barcode image. In contrast, the "edge strength" is a value calculated by the invention of Brandt which is specific to his invention. Applicants believe that the two comparisons are distinctly different because what is being compared is different.

4. Rejection of Claims 8, 11, 12, 13, 17, 19, 22, 23, 24 and 25

The Examiner has also rejected pending Claims 8, 11, 12, 13, 17, 19, 22, 23, 24 and 25 in view of various patents and patent applications including:

1. Brandt et al. U.S. Patent No. 6,585,157;
2. Hansson U.S. Patent Application No. 2001-0041581;

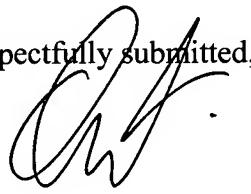
3. Rodrigo U.S. Patent Application No. 2003-0074286;
4. Klein Twennaar Patent Application No. 2003-0055675; and
5. Ritter U.S. Patent Application No. 2002-0187774.

In total, the Examiner has utilized a total of eight prior art references to reject Applicants' twenty-five claims. Applicant believes that one skilled in the art would not have the foresight to combine such varied references because the logistics of combining all of these references just would not be practical. Additionally, Applicants assert that even if all of these prior art references are combined you still do not arrive at Applicants' present invention, mainly because all of the rejections are based on a combination of Ogasawra and Tsikos which Applicants believe are incompatible.

III. Conclusion

In view of the above amendments, arguments and papers filed herewith, it is respectfully submitted that the rejections should be withdrawn. The Application is now believed to be in a condition for allowance, which is earnestly solicited.

Respectfully submitted,



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